CLAIMS

What is claimed is:

1. A tolerance ring, comprising:

a substantially cylindrical base portion having a first radius;

a plurality of contacting portions, each having at least one central region that reaches a second radius, at least two circumferential transition regions each being circumferentially adjacent to the central region and spanning from said first radius substantially to said second radius over a circumferential transition length, and at least two axial transition regions each being axially adjacent to the central region and spanning from said first radius substantially to said second radius over an axial transition length, said axial transition length being greater than said circumferential transition length.

2. The tolerance ring of claim 1, having a material thickness and wherein said axial transition regions have a profile including at least one curve with a radius of curvature of at least 2.5 times said material thickness.

3. The tolerance ring of claim 1, wherein said contacting portions each have an overall axial length and an overall circumferential width, and the ratio of said axial transition length to said overall axial length is more than the ratio of said circumferential transition length to said overall circumferential width, but less than 250 times the ratio of said circumferential transition length to said overall circumferential width.

4. The tolerance ring of claim 1, wherein said contacting portions each have an overall circumferential width, and the ratio of said circumferential transition length to said overall circumferential width is less than or equal to 0.4.

5. An actuator arm assembly for an information storage device, comprising:

an actuator arm; and

an actuator pivot bearing; and

a tolerance ring retaining the actuator pivot bearing relative to the actuator arm, wherein the tolerance ring comprises;

a substantially cylindrical base portion having a first radius; and

a plurality of contacting portions, each having at least one central region that reaches a second radius, at least two circumferential transition regions each being circumferentially adjacent to the central region and spanning from said first radius substantially to said second radius over a circumferential transition length, and at least two axial transition regions each being axially adjacent to the central region and spanning from said first radius substantially to said second radius over an axial transition length, said axial transition length being greater than said circumferential transition length.

6. The actuator arm assembly of claim 5, wherein said contacting portions each have an overall axial length and an overall circumferential width, and the ratio of said axial transition length to said overall axial length is more than the ratio of said circumferential transition length to said overall circumferential width, but less than 250 times the ratio of said

circumferential transition length to said overall circumferential width.

7. The actuator arm assembly of claim 5, wherein said contacting portions each have an overall circumferential width, and the ratio of said circumferential transition length to said overall circumferential width is less than or equal to 0.4.

8. The actuator arm assembly of claim 5, wherein said tolerance ring has a material thickness and wherein said axial transition regions have a profile including at least one curve with a radius of curvature of at least 2.5 times said material thickness.

9. A method of fabricating a tolerance ring, comprising:

forming a plurality of contacting portions in metal strip, each having at least one central region that is offset from the plane of the metal strip, and at least two first transition regions each being adjacent to the central region along a first axis and each spanning said offset over a first transition length measured along said first axis, and at least two second transition regions each being adjacent to the central region along a second axis and each spanning said offset over a second transition length measured along said second axis, said second transition length being greater than said first transition

length and said second axis being substantially orthogonal to said first axis; and

bending said metal strip into a substantially cylindrical shape, so that said second axis is substantially parallel to the central axis of the cylindrical shape.

10. The method of claim 9, wherein said bending comprises rolling.

11. The method of claim 9, wherein said bending comprises wrapping.

12. A method of assembling an actuator arm assembly for an information storage device, comprising:

forming a plurality of contacting portions in metal strip, each having at least one central region that is offset from the plane of the metal strip, and at least two first transition regions each being adjacent to the central region along a first axis and each spanning said offset over a first transition length measured along said first axis, and at least two second transition regions each being adjacent to the central region along a second axis and each spanning said offset over a second transition length measured along said second axis, said second transition length being greater than said first transition

length and said second axis being substantially orthogonal to said first axis; and

bending said metal strip into a substantially cylindrical shape, so that said second axis is substantially parallel to the central axis of the cylindrical shape; and

sliding a bearing cartridge into said substantially cylindrical shape; and then

inserting said bearing cartridge together with said substantially cylindrical shape into a hole in an actuator arm.

13. The method of claim 12, wherein said bending is oriented to bring said central region to an outer radius of said cylindrical shape.

14. A method of assembling an actuator arm assembly for an information storage device, comprising:

forming a plurality of contacting portions in metal strip, each having at least one central region that is offset from the plane of the metal strip, and at least two first transition regions each being adjacent to the central region along a first axis and each spanning said offset over a first transition length measured along said first axis, and at least two second transition regions each being adjacent to the central region along a second axis and each spanning said offset over a second

transition length measured along said second axis, said second transition length being greater than said first transition length and said second axis being substantially orthogonal to said first axis; and

bending said metal strip into a substantially cylindrical shape, so that said second axis is substantially parallel to the central axis of the cylindrical shape; and

sliding said substantially cylindrical shape into a hole in an actuator arm; and then

inserting a bearing cartridge into said substantially cylindrical shape.

15. The method of claim 14, wherein said bending is oriented to bring said central region to an inner radius of said cylindrical shape.